federal register

WEDNESDAY, AUGUST 14, 1974

WASHINGTON, D.C.

Volume 39 ■ Number 158

PART III

ENVIRONMENTAL PROTECTION AGENCY

■

Thermal Processing and Land Disposal of Solid Waste

Guidelines

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

PART 240—GUIDELINES FOR THE THERMAL PROCESSING OF SOLID WASTES

PART 241—GUIDELINES FOR THE LAND DISPOSAL OF SOLID WASTES

On April 27, 1973, the Environmental Protection Agency published in the FEDERAL REGISTER (Vol. 38, No. 81, pp. 10544 10553) "Proposed Guidelines for Thermal Processing and Land Disposal of Solid Wastes." The guidelines were proposed pursuant to the mandate of section 209 (a) of the Solid Waste Disposal Act as amended (Pub. L. 91-512), with applicability described in section 211 of the Act.

The guidelines are intended to provide for operations that will have minimum impact on the environment. They do not establish new standards, but set forth requirements and recommended procedures to ensure that the design, construction, and operation of thermal processing and land disposal facilities meet the environmental and health standards for the area in which they are located.

The guidelines are organized into mandatory requirements and recommended procedures. It is important to understand the interrelationship of these two sections: The requirements are intended as the minimum acceptable level of performance to provide for environmentally safe operations and must be satisfied by all facilities to which they are applicable. The recommended procedures are not ends unto themselves, but represent recommended means by which the requirements may be satisfied. Owners and operators of thermal processing and land disposal facilities are expected to employ the most efficient techniques and operating practices to satisfy the requirements; the recommended procedures represent such techniques and practices based on current knowledge. In order to provide latitude in design and operation to account for diverse conditions across the Nation, as well as development of new technology, other techniques and practices may be used in lieu of those presented as recommended procedures. If techniques other than those specified are used, it is the obligation of the facility's owner and operator to demonstrate to the responsible agency in advance that such techniques and practices will, in fact, satisfy the requirements.

In publishing the proposed guidelines, responses were requested of both Federal and non-Federal agencies on the following specific issues:

1. The probable range of annual costs of Federal agency compliance with the guidelines.

2. The likely impact particularly on communities disposing of their solid waste on Federal lands.

3. Planning of Federal agency compliance with the guidelines.

The Agency also invited public comment about and review and criticism of the guidelines. Responses and comments were received and are on file with the Agency. A number of these comments have resulted in changes—deletions from or additions to the guidelines. Responses and comments are discussed in part below. Interested parties may obtain copies of a summary of comments received by requesting it from the Deputy Assistant Administrator for Solid Waste Management Programs (HM-562), U.S. Environmental Protection Agency, Washington, D.C. 20460.

RESPONSES REQUESTED

1. Probable range of annual costs of Federal agency compliance with the guidelines. Federal agencies indicated that compliance with the guidelines would necessitate increased budget requests to upgrade facilities and maintain inspection, surveillance and compliance systems. Most facilities used by Federal agencies, as well as those operated on Federal land by non-Federal agencies, will require upgrading. However, expected cost increases could not be derived without prolonged and detailed study. Such studies are expected to be conducted and used by the Federal agencies as they comply with the guidelines.

2. *Likely impact, particularly on communities disposing of their solid waste on Federal lands.* Federal agencies reported that most communities would experience increased costs. Impact would vary considerably since existing requirements in many States are equal to or more stringent that those of the guidelines. Some communities are interested in improving their operations and are prepared to absorb increased costs.

Communities are expected to meet the improvements expected by several means such as increased budgets, regionalization of systems to realize economies of scale, or establishing more rational and realistic schedules of operation to maximize site use and minimize labor costs.

3. *Planning of Federal agency compliance with the guidelines.* Federal agencies indicated a need for development of meaningful compliance schedules and expressed concern for the availability of funds to attain compliance.

COMMENTS

1. *General.* Several commentators raised questions regarding compliance plans and schedules. These issues will be addressed and resolved in subsequent guidance documents to be developed pursuant to section 211(a)(4) of the Solid Waste Disposal Act as amended, which provides for implementation regulations.

Commentators pointed out the potential for confusion in determining the relationship between requirements and recommended procedures provided in the guidelines. As stated in the preamble of the proposed guidelines, the requirements delineate minimum levels of performance required of facilities. The recommended procedures represent the most efficient techniques and operating practices, based on current knowledge, which facility owners and operators are expected to employ to meet the requirements. Techniques other than those specified as recommended procedures may be used. This approach, i.e. requirements/procedures, was specifically designed to account for varying demographic, geographic, and climatological conditions, thereby permitting accommodations to local conditions and alternative management and technical approaches.

The American Petroleum Institute suggested that the definition of the term "solid waste" used in the guidelines is a misrepresentation of the intent of the Solid Waste Disposal Act as amended. The issue of concern is inclusion of the term "sludges" in the guidelines definition, while it does not appear in the definition used in the Act. The Institute viewed this inclusion to constitute an expansion of the Act beyond its originally intended scope. The Agency has re-examined the definitions of the terms "sludge" and "solid waste" as presented in the guidelines and found them to be consistent with the intent of the Act.

Several commentators expressed concern for the subjective nature of the requirement entitled "aesthetics." The Agency recognizes that aesthetic acceptability is a subjective matter and will necessitate responsible interpretation. The Agency views aesthetic acceptability as a valid concern which should be addressed in the guidelines and must be considered by owners and operators of solid waste processing and disposal facilities. As neither the Agency nor reviewers have been able to devise quantitative indicators of aesthetic acceptability to overcome the subjective nature of the issue, the requirement has been retained as proposed, and the Agency expects professional judgment and common sense to prevail to assure aesthetically acceptable operations.

2. *Thermal Processing.* The State of New York objected to the language of § 240.100(a) which stated that thermal processing facilities must be operated in conjunction with a final land disposal facility. While recognizing the need for a disposal site to receive residues and wastes which cannot be thermally processed, the State did not agree that such a site need be operated in conjunction with the thermal processing facility. The Agency agrees with the objection and has changed the language of this section.

The Manufacturing Chemists Association suggested that the second sentence of § 240.200-1 be revised to provide more flexibility on the types of wastes to be accepted at a facility. The suggestion was premised on the possibility that facilities may be able to demonstrate that other wastes can be satisfactorily processed within their design capability or after appropriate facility modification. The Agency agrees that such provision is appropriate and has revised that section.

3. *Land Disposal.* Several commentators expressed concern that the guidelines are stringent to the extent that compliance will be prohibitive for small communities, thereby removing Federal lands from use by these communities

as solid waste disposal sites. The Agency is aware that implementation of the guidelines will necessitate a reassessment, on the part of many communities presently using Federal land for solid waste disposal, of current practices and alternatives. Where community solid waste disposal practices on Federal lands are found to be unacceptable, communities may elect to upgrade their practices, working with the Federal land-holding agency; or discontinue their practices, seeking a site not on Federal land. The Agency is of the opinion that solid waste disposal practices must be upgraded to acceptable environmental levels regardless of whether disposal sites are on Federal or non-Federal land. The majority of the States have rules and regulations equal to or more stringent than the guidelines, and local governments therefore are already faced with the necessity of upgrading their unacceptable practices. Certainly, increased costs may occur, but such increases are imminent regardless of whether Federal or non-Federal land is used. The Agency is of the opinion that the annual per capita cost to comply with the minimum requirements of these guidelines is small and reasonable. Further, as previously discussed, the flexibility of the requirements/procedures concept allows great latitude and professional judgment on compliance, thereby accommodating local needs, situations, practices, and economic conditions.

The Sierra Club (New Jersey Chapter) suggested that the guidelines require monitoring and control of decomposition gases and leachate at all land disposal sites since it is their opinion that this is necessary in the northeast. The Agency recognizes that such monitoring and control would be appropriate at many sites. However, the guidelines must be relevant to various site characteristics and designs across the entire nation and must, therefore, incorporate some degree of flexibility to accommodate diverse conditions. Thus, § 241.212 provides for monitoring as required by the responsible agency, allowing an assessment of individual site conditions.

The Sierra Club (New Jersey Chapter) suggested that the guidelines provide for retention basins or other means of reducing flooding potential from rapid runoff. The Agency agrees and has revised § 241.204–3 to reflect this concern, as well as that for stream siltation.

Several commentators expressed concern that § 241.209 should be more stringent in requiring application of daily cover, while others suggested that the section is too stringent as written. As reflected in the recommended procedures of § 241.209, the Agency recognizes the application of daily, intermediate, and final cover as the most efficient operating practice based on current knowledge for meeting the requirement as stated. However, recognizing that this practice is not an end unto itself, but a means of maintaining environmental quality, the guidelines provide for use of other practices where they can be shown to satisfy the requirements of environmental and health needs.

Implementation. Pursuant to the mandate of section 209 of the Solid Waste Disposal Act, these guidelines are recommended to Federal, State, interstate, regional, county, and local solid waste management agencies.

The guidelines are to be used by U.S. Executive agencies in complying with section 211 of the Act and Executive Order 11752. Within the established policies of the Administration, Executive agencies should begin the development of plans for ensuring compliance with the guidelines as required by the Act and the Order. The development of these plans, recognizing the budget cycles of the Federal Government, should be designed so as to provide adequate information for cost assessment and prioritization of compliance projects, and schedules to meet the guidelines.

AUTHORITY: These guidelines are issued under the authority of section 209 of the Solid Waste Disposal Act (Pub. L. 89–272, as amended by Pub. L. 91–512).

JOHN QUARLES,
Acting Administrator.

AUGUST 7, 1974.

Subpart A—General Provisions

Sec.
240.100 Scope.
240.101 Definitions.

Subpart B—Requirements and Recommended Procedures

240.200 Solid wastes accepted.
240.200–1 Requirement.
240.200–2 Recommended procedures: Design.
240.200–3 Recommended procedures: Operations.
240.201 Solid wastes excluded.
240.201–1 Requirement.
240.201–2 Recommended procedures: Design.
240.201–3 Recommended procedures: Operations.
240.202 Site selection.
240.202–1 Requirement.
240.202–2 Recommended procedures: Design.
240.202–3 Recommended procedures: Operations.
240.203 General design.
240.203–1 Requirement.
240.203–2 Recommended procedures: Design.
240.203–3 Recommended procedures: Operations.
240.204 Water quality.
240.204–1 Requirement.
240.204–2 Recommended procedures: Design.
240.204–3 Recommended procedures: Operations.
240.205 Air quality.
240.205–1 Requirement.
240.205–2 Recommended procedures: Design.
240.205–3 Recommended procedures: Operations.
240.206 Vectors.
240.206–1 Requirement.
240.206–2 Recommended procedures: Design.
240.206–3 Recommended procedures: Operations.
240.207 Aesthetics.
240.207–1 Requirement.
240.207–2 Recommended procedures: Design.
240.207–3 Recommended procedures: Operations.
240.208 Residue.
240.208–1 Requirement.
240.208–2 Recommended procedures: Design.
240.208–3 Recommended procedures: Operations.
240.209 Safety.
240.209–1 Requirement.
240.209–2 Recommended procedures: Design.
240.209–3 Recommended procedures: Operations.
240.210 General operations.
240.210–1 Requirement.
240.210–2 Recommended procedures: Design.
240.210–3 Recommended procedures: Operations.
240.211 Records.
240.211–1 Requirement.
240.211–2 Recommended procedures: Design.
240.211–3 Recommended procedures: Operations.

APPENDIX Recommended Bibliography.

AUTHORITY: Sec. 209(a), Solid Waste Disposal Act of 1965 (Pub. L. 89–272); as amended by the Resource Recovery Act of 1970 (Pub. L. 91–512).

Subpart A—General Provisions

§ 240.100 Scope.

(a) The prescribed guidelines are applicable to thermal processing facilities designed to process or which are processing 50 tons or more per day of municipal-type solid wastes. The application of this capacity criterion will be interpreted to mean any facility designed to process or actually processing 50/24 tons or more per hour. However, the guidelines do not apply to hazardous, agricultural, and mining wastes because of the lack of sufficient information upon which to base recommended procedures.

(b) The requirement sections contained herein delineate minimum levels of performance required of any solid waste thermal processing operation. The recommended procedures sections are presented to suggest preferred methods by which the objectives of the requirements can be realized. The recommended procedures are based on the practice of incineration at large facilities (50 tons per day or more) processing municipal solid waste. If techniques other than the recommended procedures are used or wastes other than municipal wastes are processed, it is the obligation of the facility's owner and operator to demonstrate to the responsible agency in advance by means of engineering calculations, pilot plant data, etc., that the techniques employed will satisfy the requirements.

(c) Thermal processing residue must be disposed of in an environmentally acceptable manner. Where a land disposal facility is employed, it must be in accordance with the Environmental Protection Agency's Guidelines for The Land Disposal of Solid Wastes for both residues from the thermal processing operation and those non-hazardous wastes which cannot be thermally processed for reasons of health, safety, or technological limitation.

(d) Pursuant to section 211 of the Solid Waste Disposal Act, as amended, these guidelines are mandatory for Federal agencies. In addition, they are recommended to State, interstate, regional, and local government agencies for use in their activities.

(e) The guidelines are intended to apply equally to all solid waste generated by Federal agencies, regardless of whether processed or disposed of on or off Federal property; and solid waste generated by non-Federal entities, but processed or disposed of on Federal property. However, in the case of many Federal facilities such as Post Offices, military recruiting stations, and other offices, local community solid waste processing and disposal facilities are utilized, and processing and disposal is not within the management control of the Federal agency. Thus, implementation of the guidelines can be expected only in those situations where the Federal agency is able to exercise direct management control over the processing and disposal operations. However, every effort must be made by the responsible agency, where offsite facilities are utilized, to attain processing and disposal facilities that are in compliance with the guidelines. Where non-Federal generated solid waste is processed and disposed of on Federal land and/or facilities, those facilities and/or sites must be in compliance with these guidelines. Determination of compliance to meet the requirements of the guidelines rests with the responsible agency, and they have the authority to determine how such compliance may occur.

§ 240.101 Definitions.

As used in these guidelines:

(a) "Air": "Overfire air" means air, under control as to quantity and direction, introduced above or beyond a fuel bed by induced or forced draft. "Underfire air" means any forced or induced air, under control as to quantity and direction, that is supplied from beneath and which passes through the solid wastes fuel bed.

(b) "Bottom ash" means the solid material that remains on a hearth or falls off the grate after thermal processing is complete.

(c) "Combustibles" means materials that can be ignited at a specific temperature in the presence of air to release heat energy.

(d) "Design capacity" means the weight of solid waste of a specified gross calorific value that a thermal processing facility is designed to process in 24 hours of continuous operation; usually expressed in tons per day.

(e) "Discharge" means water-borne pollutants released to a receiving stream directly or indirectly or to a sewerage system.

(f) "Emission" means gas-borne pollutants released to the atmosphere.

(g) "Facility" means all thermal processing equipment, buildings, and grounds at a specific site.

(h) "Fly ash" means suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion.

(i) "Free moisture" means liquid that will drain freely by gravity from solid materials.

(j) "Furnace" means the chambers of the combustion train where drying, ignition, and combustion of waste material and evolved gases occur.

(k) "Grate siftings" means the materials that fall from the solid waste fuel bed through the grate openings.

(l) "Gross calorific value" means heat liberated when waste is burned completely and the products of combustion are cooled to the initial temperature of the waste. Usually expressed in British thermal units per pound.

(m) "Hazardous waste" means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable or persistent in nature or because they can be biologically magnified, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects.

(n) "Incineration" means the controlled process which combustible solid, liquid, or gaseous wastes are burned and changed into noncombustible gases.

(o) "Incinerator" means a facility consisting of one or more furnaces in which wastes are burned.

(p) "Infectious waste" means: (1) Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(q) "Municipal solid wastes" means normally, residential and commercial solid wastes generated within a community.

(r) "Open burning" means burning of solid wastes in the open, such as in an open dump.

(s) "Open dump" means a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers.

(t) "Plans" means reports and drawings, including a narrative operating description, prepared to describe the facility and its proposed operation.

(u) "Residue" means all the solids that remain after completion of thermal processing, including bottom ash, fly ash, and grate siftings.

(v) "Responsible agency" means the organizational element that has the legal duty to ensure that owners, operators, or users of facilities comply with these guidelines.

(w) "Sanitary Landfill" means a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day.

(x) "Sludge" means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(y) "Solid wastes" means garbage, refuse, sludges, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(z) "Special wastes" means nonhazardous solid wastes requiring handling other than that normally used for municipal solid waste.

(aa) "Thermal processing" means processing of waste material by means of heat.

(bb) "Vector" means a carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another.

Subpart B—Requirements and Recommended Procedures

§ 240.200 Solid wastes accepted.

§ 240.200–1 Requirement.

In consultation with the responsible agencies, the owner/operator shall determine what wastes shall be accepted and shall identify any special handling required. In general, only wastes for which the facility has been specifically designed shall be accepted; however, other wastes may be accepted if it has been demonstrated to the responsible agency that they can be satisfactorily processed within the design capability of the facility or after appropriate facility modifications.

§ 240.200–2 Recommended procedures: Design.

(a) In addition to the residential and commercial wastes normally processed at municipal-scale incinerators, certain special wastes might be considered for processing. These include: Certain bulky wastes (e.g., combustible demolition and construction debris, tree stumps, large timbers, furniture, and major appliances), digested and dewatered sludges

from waste water treatment facilities, raw sewage sludges, and septic tank pumpings.

(b) If the facility is designed to handle special wastes, special areas should be provided where appropriate for storage while they await processing.

§ 240.200–3 Recommended procedures: Operations.

(a) Storage areas for special wastes should be clearly marked.

(b) Facility personnel should be thoroughly trained in any unusual handling required by acceptance of Special Wastes.

§ 240.201 Solid wastes excluded.

§ 240.201–1 Requirement.

Using information provided to them by the waste generator/owner, the responsible agency and the facility owner/operator shall jointly determine specific wastes to be excluded and shall identify them in the plans. The generator/owner of excluded wastes shall consult with the responsible agency in determining an alternative method of disposal for excluded wastes. The criteria used in considering whether a waste is unacceptable shall include the facility's capabilities, alternative methods available, the chemical and biological characteristics of the waste, environmental and health effects, and the safety of personnel. Disposal of pesticides and pesticide containers shall be consistent with the Federal Environmental Pesticides Control Act of 1972 (Pub. L. 92–516) and recommended procedures promulgated thereunder.

§ 240.201–2 Recommended procedures: Design.

(a) Provision for storing, handling, and removing hazardous or excluded wastes inadvertently left at the facility should be considered in design.

(b) Examples of wastes which should be considered for exclusion from the facility include: Hazardous wastes, very large carcasses, automobile bodies, dewatered sludges from water treatment plants, and industrial process wastes.

§ 240.201–3 Recommended procedures: Operations.

(a) Regular users of the facility should be given a list of excluded materials. The list should also be displayed prominently at the facility entrance. If a regular user persists in making unacceptable deliveries, he should be barred from the installation and reported to the responsible agency.

(b) The operating plan should specify the procedures and precautions to be taken if unacceptable wastes are delivered to the facility or are improperly left there. Operating personnel should be thoroughly trained in such procedures.

§ 240.202 Site selection.

§ 240.202–1 Requirement.

Site selection and utilization shall be consistent with public health and welfare, and air and water quality standards and adaptable to appropriate land-use plans.

§ 240.202–2 Recommended procedures: Design.

(a) Whenever possible, thermal processing facilities should be located in areas zoned for industrial use and having adequate utilities to serve the facility.

(b) The site should be accessible by permanent roads leading from the public road system.

(c) Environmental factors, climatological conditions, and socioeconomic factors should be given full consideration as selection criteria.

§ 240.202–3 Recommended procedures: Operations.

Not applicable.

§ 240.203 General design.

§ 240.203–1 Requirement.

A plan for the design of new facilities or modifications to existing facilities shall be prepared or approved by a professional engineer. A list of major considerations and the rationale for the decision on each consideration shall be approved by the responsible agency prior to authorization for construction. This information shall remain available for review.

§ 240.203–2 Recommended procedures: Design.

(a) The types, amounts (by weight and volume), and characteristics of all solid wastes expected to be processed should be determined by survey and analysis. The gross calorific value of the solid wastes to be processed should be determined to serve as a basis for design.

(b) Resource recovery in the form of heat utilization or direct recovery of materials should be considered in the design.

(c) The facility should be designed to be compatible with the surrounding area, easy to maintain, and consistent with the land use of the area.

(d) Employee convenience facilities and plant maintenance facilities should be provided. Adequate lighting should be provided throughout the facility.

(e) The corrosive and erosive action of once-through and recirculated process waters should be controlled either by treating them or by using materials capable of withstanding the adverse effects of the waters.

(f) Facility design capacity should consider such items as waste quantity and characteristics, variations in waste generation, equipment downtime, and availability of alternate storage, processing, or disposal capability.

(g) Facility systems and subsystems should be designed to assure standby capability in the event of breakdown. Provision for standby water and power should also be considered.

(h) Instrumentation should be provided to determine such factors as: The weight of incoming and outgoing materials (the same scale system may be used for both); total combustion airflow rates; underfire and overfire airflows and the quantitative distribution of each; selected temperatures and pressures in the furnace, along gas passages, in the particluate collection* device, and in the stack; electrical power and water consumption of critical units; and rate of operation. The smoke density, the concentration of carbon monoxide, or the concentration of hydrocarbons in the stack gases should be monitored. Measurement of the pH should be considered for effluent waters. Continuously recording instrumentation should be used as much as possible.

(i) Audible signals should be provided to alert operating personnel of critical operating unit malfunctions.

(j) Sampling capability should be designed into the facility so that each process stream can be sampled, and the utilities required to do so should be close at hand. The sampling sites should be so designed that personnel can sample safely without interfering with normal plant operations.

(k) A laboratory should be included in the design, or provision should be made for laboratory analyses to be performed by an outside source acceptable to the responsible agency.

§ 240.203–3 Recommended procedures: Operations.

Not applicable.

§ 240.204 Water quality.

§ 240.204–1 Requirement.

All waters discharged from the facility shall be sufficiently treated to meet the most stringent of applicable water quality standards, established in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended.

§ 240.204–2 Recommended procedures: Design.

(a) Effluent waters should not be discharged indiscriminately. Consideration should be given to onsite treatment of process and waste waters before discharge.

(b) Recirculation of process waters should be considered.

§ 240.204–3 Recommended procedures: Operations.

(a) When monitoring instrumentation indicates excessive discharge contamination, appropriate adjustments should be made to lower the concentrations to acceptable levels.

(b) In the event of an accidental spill, the local regulatory agency should be notified immediately.

§ 240.205 Air quality.

§ 240.205–1 Requirement.

Emissions shall not exceed applicable existing emission standards established by the U.S. Environmental Protection Agency (as published in Parts 52, 60, 61 and 76 of this chapter) under the authority of the Clean Air Act, as amended, or State or local emission standards effective under that Act, if the latter are more stringent.

§ 240.205–2 Recommended procedures: Design.

(a) These requirements should be met by using appropriate air pollution control technology.

(b) All emissions, including dust from vents, should be controlled.

§ 240.205–3 Recommended procedures: Operations.

When monitoring instrumentation indicates excessive emissions, appropriate adjustments should be made to lower the emission to acceptable levels.

§ 240.206 Vectors.

§ 240.206–1 Requirement.

Conditions shall be maintained that are unfavorable for the harboring, feeding, and breeding of vectors.

§ 240.206–2 Recommended procedures: Design.

Thermal processing facilities should be designed for ease of cleaning. Areas favorable for breeding of vectors should be avoided.

§ 240.206–3 Recommended procedures: Operations.

(a) A housekeeping schedule should be established and maintained. As a minimum the schedule should provide for cleaning the tipping and residue areas as spillages occur, emptying the solid waste storage area at least weekly, and routinely cleaning the remainder of the facility.

(b) Solid waste and residue should not be allowed to accumulate at the facility for more than one week.

§ 240.207 Aesthetics.

§ 240.207–1 Requirement.

The incinerator facility shall be designed and operated at all times in an aesthetically acceptable manner.

§ 240.207–2 Recommended procedures: Design.

The facility should be designed so that it is physically attractive. The tipping, residue discharge, and waste salvage areas should be screened from public view, and the grounds should be landscaped.

§ 240.207–3 Recommended procedures: Operations.

(a) A routine housekeeping and litter removal schedule should be established and implemented so that the facility regularly presents a neat and clean appearance.

(b) Solid wastes that cannot be processed by the facility should be removed from the facility at least weekly. Open burning or open dumping of this material should be prohibited.

§ 240.208 Residue.

§ 240.208–1 Requirement.

Residue and other solid waste products resulting from a thermal process shall be disposed of in an environmentally acceptable manner. Where land disposal is employed, practices must be in conformance with the U.S. Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes. Unwanted residue materials remaining after the recovery operation shall be disposed of in a manner which protects the environment. Where land disposal is employed, practices must be in conformance with the U.S. Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes.

§ 240.208–2 Recommended procedures: Design.

Thermal processing facilities should be so designed as to allow for removal from the site of residue or other solids in a manner that protects the environment.

§ 240.208–3 Recommended procedures: Operations.

(a) The furnace operator should visually observe the quality of the bottom ash at least twice per shift and record in the operating log the estimated percentage of unburned combustibles.

(b) If residue or fly ash is collected in a wet condition, it should be drained of free moisture. Transportation of residue and fly ash should be by means that prevent the loads from sifting, falling, leaking, or blowing from the container.

§ 240.209 Safety.

§ 240.209–1 Requirement.

Incinerators shall be designed, operated, and maintained in a manner to protect the health and safety of personnel associated with the operation of the facility. Pertinent provisions of the Occupational Safety and Health Act of 1970 (Pub. L. 91–596) and regulations promulgated thereunder shall apply.

§ 240.209–2 Recommended procedures: Design.

(a) Attention should be given to the safety of operators and vehicles through the provision of safety devices.

(b) Fire control equipment should be provided.

(c) Methods and/or equipment for removal of an injured person from the storage pit should be available.

§ 240.209–3 Recommended procedures: Operations.

(a) Detailed procedures should be developed for operation during such emergency situations as power failure, air or water supply failure, equipment breakdowns, and fire. These procedures should be posted in prominent locations, implemented by the staff as required, and upgraded and revised periodically.

(b) Approved respirators or self-contained breathing apparatus should be available at convenient locations. Their use should be reviewed periodically with facility personnel. Information on this type equipment can be obtained from the Appalachian Laboratory for Occupational Respiratory Disease, National Institute for Occupational Safety and Health, Morgantown, West Virginia.

(c) Training in first aid practices and emergency procedures should be given all personnel.

(d) Personal safety devices such as hard hats, gloves, safety glasses, and footwear should be provided for facility employees.

(e) If a regular user or employee persistently poses a safety hazard he should be barred from the facility and reported to the responsible agency.

§ 240.210 General operations.

§ 240.210–1 Requirement.

The thermal processing facility shall be operated and maintained in a manner that assures it will meet the design requirements. An operations manual describing the various tasks to be performed, operating procedures, and safety precautions for various areas of the facility shall be developed and shall be readily available for reference by plant personnel.

§ 240.210–2 Recommended procedures: Design.

Not applicable.

§ 240.210–3 Recommended procedures: Operations.

(a) The facility supervisor should be experienced in the operation of the type of facility designed or, in the case of an innovated design, be adequately trained by responsible personnel in the operation of the facility.

(b) Alternate and standby disposal and operating procedures should be established for implementation during emergencies, air pollution episodes, and shutdown periods.

(c) Upon completion of facility construction, provision should be made for instruction of the staff in proper operation and maintenance procedures.

(d) A routine maintenance schedule should be established and followed.

(e) As-built engineering drawings of the facility should be provided at the conclusion of construction of the facility. These should be updated to show modifications by the owner as changes are made and should be readily available. A schematic showing the relationships of the various subsystems should also be available.

(f) Key operational procedures should be prominently posted.

(g) Equipment manuals, catalogs, spare parts lists, and spare parts should be readily available at the facility.

(h) Training opportunities for facility operating personnel should be provided.

§ 240.211 Records.

§ 240.211–1 Requirement.

The owner/operator of the thermal processing facility shall provide records and monitoring data as required by the responsible agency.

§ 240.211–2 Recommended procedures: Design.

Continuously recording instrumentation should be used as much as possible.

§ 240.211–3 Recommended procedures: Operations.

(a) Extensive monitoring and record-keeping should be practiced during the first 12 to 18 months of operation of a new or renovated facility, during periods of high air pollution, and during periods of upset conditions at the facility.

(b) During other periods of more normal operation of the facility, less extensive monitoring and record keeping may be practiced if approved by the responsible agency.

(c) Operating records should be kept in a daily log and should include as a minimum:

(1) The total weight and volume (truck capacities may be used for volume determination) of solid waste received during each shift, including the number of loads received, the ownership or specific identity of delivery vehicles, the source and nature of the solid wastes accepted.

(2) Furnace and combustion chamber temperatures recorded at least every 60 minutes and as changes are made, including explanations for prolonged, abnormally high and low temperatures.

(3) Rate of operation, such as grate speed.

(4) Overfire and underfire air volumes and pressure and distribution recorded at least every 60 minutes and as changes are made.

(5) Weights of bottom ash, grate siftings, and fly ash, individually or combined, recorded at intervals appropriate to normal facility operation.

(6) Estimated percentages of unburned material in the bottom ash.

(7) Water used on each shift for bottom ash quenching and scrubber operation. Representative samples of process waters should be collected and analyzed as recommended by the responsible agency.

(8) Power produced and utilized each shift. If steam is produced, quality, production totals and consumption rates should be recorded.

(9) Auxiliary fuel used each shift.

(10) Gross calorific value of daily representative samples of bottom ash, grate siftings, and fly ash. (Sampling time should be varied so that all shifts are monitored on a weekly basis.)

(11) Emission measurements and laboratory analyses required by the responsible agency.

(12) Complete records of monitoring instruments.

(13) Problems encountered and methods of solution.

(d) An annual report should be prepared which includes at least the following information:

(1) Minimum, average, and maximum daily volume and weight of waste received and processed, summarized on a monthly basis.

(2) A summary of the laboratory analyses including at least monthly averages.

(3) Number and qualifications of personnel in each job category; total man-hours per week; number of State certified or licensed personnel; staffing deficiencies; and serious injuries, their cause and preventive measures instituted.

(4) An identification and brief discussion of major operational problems and solutions.

(5) Adequacy of operation and performance with regard to environmental requirements, the general level of housekeeping and maintenance, testing and reporting proficiency, and recommendations for corrective actions.

(6) A copy of all significant correspondence, reports, inspection reports, and any other communications from enforcement agencies.

(e) Methodology for evaluating the facility's performance should be developed. Evaluation procedures recommended by the U.S. Environmental Protection Agency should be used whenever possible (see bibliography).

APPENDIX—RECOMMENDED BIBLIOGRAPHY

1. The Solid Waste Disposal Act as amended; Title II of Public Law 89–272, 89th Cong., S. 306, Oct. 20, 1965; Pub. L. 91–512, 91st Cong., H.R. 11833, Oct. 26, 1970. Washington, U.S. Government Printing Office, 1971. 14 p. Reprinted 1972.

2. Seven incinerators; evaluation, discussions, and authors' closure. [Washington, U.S. Environmental Protection Agency, 1971. 40 p.] (Includes discussions and authors' closure for "An evaluation of seven incinerators" by W. C. Achinger and L. E. Daniels.)

3. DeMarco, J., D. J. Keller, J. Leckman, and J. L. Newton. Municipal-scale incinerator design and operation. Public Health Service Publication No. 2012. Washington, U.S. Government Printing Office, 1973. 98 p.

4. Occupational Safety and Health Act of 1970; Pub. L. 91–596, 91st Cong., S. 2193, Dec. 29, 1970. Washington, U.S. Government Printing Office, 1972.

5. Control techniques for particulate air pollutants. Publication AP–51. U.S. Department of Health, Education, and Welfare, National Air Pollution Control Administration, 1969.

6. Zausner, E. R. An accounting system for incinerator operations. Public Health Service Publication No. 2032. Washington, U.S. Government Printing Office, 1970. 17 p.

7. Achinger, W. C., and J. J. Giar, Testing manual for solid waste incinerators. [Cincinnati], U.S. Environmental Protection Agency, 1973. [372 p., loose-leaf.] [Open-file report, restricted distribution.]

8. Nader, J. S., W. Carter, and F. Jaye. Performance Specifications for Stationary Source Monitoring Systems. NTIS PB. 230 934/AS (1974).

Subpart A—General Provisions

Sec.
241.100 Scope.
241.101 Definitions.

Subpart B—Requirements and Recommended Procedures

241.200 Solid wastes accepted.
241.200–1 Requirement.
241.200–2 Recommended procedures: Design.
241.200–3 Recommended procedures: Operations.
241.201 Solid wastes excluded.
241.201–1 Requirement.
241.201–2 Recommended procedures: Design.
241.201–3 Recommended procedures: Operations.
241.202 Site selection.
241.202–1 Requirement.
241.202–2 Recommended procedures: Design.
241.202–3 Recommended procedures: Operations.
241.203 Design.
241.203–1 Requirement.
241.203–2 Recommended procedures: Design.
241.203–3 Recommended procedures: Operations.
241.204 Water quality.
241.204–1 Requirement.
241.204–2 Recommended procedures: Design.
241.204–3 Recommended procedures: Operations.
241.205 Air quality.
241.205–1 Requirement.
241.205–2 Recommended procedures: Design.
241.205–3 Recommended procedures: Operations.
241.206 Gas control.
241.206–1 Requirement.
241.206–2 Recommended procedures: Design.
241.206–3 Recommended procedures: Operations.
241.207 Vectors.
241.207–1 Requirement.
241.207–2 Recommended procedures: Design.
241.207–3 Recommended procedures: Operations.
241.208 Aesthetics.
241.208–1 Requirement.
241.208–2 Recommended procedures: Design.
241.208–3 Recommended procedures: Operations.
241.209 Cover material.
241.209–1 Requirement.
241.209–2 Recommended procedures: Design.
241.209–3 Recommended procedures: Operations.
241.210 Compaction.
241.210–1 Requirement.
241.210–2 Recommended procedures: Design.
241.210–3 Recommended procedures: Operations.
241.211 Safety.
241.211–1 Requirement.
241.211–2 Recommended procedures: Design.
241.211–3 Recommended procedures: Operations.
241.212 Records.
241.212–1 Requirement.
241.212–2 Recommended procedures: Design.
241.212–3 Recommended procedures: Operations.

APPENDIX—Recommended Bibliography.

AUTHORITY: Sec. 209(a) of the Solid Waste Disposal Act of 1965 (Pub. L. 89–272) as amended by the Resource Recovery Act of 1970 (Pub. L. 91–512).

Subpart A—General Provisions

§ 241.100 Scope.

(a) The guidelines are generally applicable to the land disposal of all solid waste materials. However, the guidelines do not apply to hazardous, agricultural, and mining wastes because of the lack of sufficient information upon which to base recommended procedures. Concerning the specific practice of land disposal of milled solid wastes, EPA guidance is contained in a position statement issued in November 1972.

(b) The requirement sections contained herein delineate minimum levels of performance required of any solid waste land disposal site operation. The recommended procedures sections are presented to suggest preferred methods by which the objectives of the requirements can be realized.[1] The recommended procedures are based on the practice of sanitary landfilling municipal solid waste: Normally, residential, and commercial solid waste generated within a community. Sanitary landfilling is the most widely applied environmentally acceptable land disposal method. If techniques other than the recommended procedures are used, or wastes other than municipal solid wastes are disposed, it is the obligation of the proposed facility's owner and operator to demonstrate to the responsible agency in advance by means of engineering calculations and data that the techniques employed will satisfy the requirements.

(c) Pursuant to section 211 of the Solid Waste Disposal Act, as amended, these guidelines are mandatory for Federal agencies. In addition, they are recommended to State, interstate, regional, and local government agencies for use in their activities.

(d) These guidelines are intended to provide for environmentally acceptable land disposal site operations. The guidelines do not establish new standards but set forth requirements and recommended procedures to ensure that the design, construction, and operation of both existing and future land disposal sites meet the health and environmental standards for the area in which they are located. The guidelines are intended to apply equally to all solid waste generated by Federal agencies, regardless of whether processed or disposed of on or off Federal property; and solid waste generated by non-Federal entities, but processed or disposed of on Federal property. However, in the case of many Federal facilities such as Post Offices, military recruiting stations, and other offices, local community solid waste processing and disposal facilities are utilized, and processing and disposal is not within the management control of the Federal agency. Thus, implementation of the guidelines can be expected only in those situations where the Federal agency is able to exercise direct management control over the processing and disposal operations. However, every effort must be made by the responsible agency, where offsite facilities are utilized, to attain processing and disposal facilities that are in compliance with the guidelines. Where non-Federal generated solid waste is processed and disposed of on Federal land and/or facilities, those facilities and/or sites must be in compliance with these guidelines. Determination of compliance to meet the requirements of the guidelines rests with the responsible agency, and they have the authority to determine how much compliance may occur.

[1] Further guidance may be found in the EPA publication, "Sanitary Landfill Design and Operation," which served as a basis for the development of these guidelines.

§ 241.101 Definitions.

As used in these guidelines:

(a) "Cell" means compacted solid wastes that are enclosed by natural soil or cover material in a land disposal site.

(b) "Cover material" means soil or other suitable material that is used to cover compacted solid wastes in a land disposal site.

(c) "Daily cover" means cover material that is spread and compacted on the top and side slopes of compacted solid waste at least at the end of each operating day in order to control vectors, fire, moisture, and erosion and to assure as aesthetic appearance.

(d) "Final cover" means cover material that serves the same functions as daily cover but, in addition, may be permanently exposed on the surface.

(e) "Free moisture" means liquid that will drain freely by gravity from solid materials.

(f) "Groundwater" means water present in the saturated zone of an aquifer.

(g) "Hazardous wastes" means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable or persistent in nature or because they can be biologically magnified, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects.

(h) "Infectious waste" means: (1) Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes, such as pathological specimens (e.g. all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(i) "Intermediate cover" means cover material that serves the same functions as daily cover, but must resist erosion for a longer period of time, because it is applied on areas where additional cells are not to be constructed for extended periods of time.

(j) "Leachate" means liquid that has percolated through solid waste and has extracted dissolved or suspended materials from it.

(k) "Municipal solid wastes" means normally, residential, and commercial solid waste generated within a community.

(l) "Open burning" means burning of solid wastes in the open, such as in an open dump.

(m) "Open dump" means a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, is susceptible to open burning, and is exposed to the elements, vectors, and scavengers.

(n) "Plans" means reports and drawings, including a narrative operating description, prepared to describe the land disposal site and its proposed operation.

(o) "Residue" means all the solids that remain after completion of thermal processing, including bottom ash, fly ash, and grate siftings.

(p) "Responsible agency" means the organizational element that has the legal duty to ensure that owners, operators or users of land disposal sites comply with these guidelines.

(q) "Runoff" means the portion of precipitation that drains from an area as surface flow.

(r) "Salvaging" means the controlled removal of waste materials for utilization.

(s) "Sanitary landfill" means a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day.

(t) "Scavenging" means uncontrolled removal of solid waste materials.

(u) "Sludge" means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(v) "Solid wastes" means garbage, refuse, sludges, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(w) "Vector" means a carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another.

(x) "Water table" means the upper water level of a body of groundwater.

(y) "Working face" means that portion of the land disposal site where solid wastes are discharged and are spread and compacted prior to the placement of cover material.

Subpart B—Requirements and Recommended Procedures

§ 241.200 Solid wastes accepted.

§ 241.200–1 Requirement.

In consultation with the responsible agencies the owner/operator shall de-

termine what wastes shall be accepted and shall identify any special handling required. In general, only wastes for which the facility has been specifically designed shall be accepted; however, other wastes may be accepted if it has been demonstrated to the responsible agency that they can be satisfactorily disposed with the design capability of the facility or after appropriate facility modifications.

§ 241.200–2 Recommended procedures: Design.

The plans should specify the procedures to be employed for wastes requiring special handling.

§ 241.200–3 Recommended procedures: Operations.

(a) Routine sanitary landfill techniques of spreading and compacting solid wastes and placing cover material at the end of each operating day should be used to dispose of municipal solid wastes.

(b) Certain bulky wastes, such as automobile bodies, furniture, and appliances may be salvaged in a controlled manner at a point other than the working face. Otherwise, they should be crushed on solid ground and then pushed onto the working face near the bottom of the cell. Other bulky items, such as demolition and construction debris, tree stumps, and large timbers, should be pushed onto the working face near the bottom of the cell.

(c) Procedures for disposing of dead animals have been established by law in most States, and the operation should comply accordingly. In most cases, small carcasses should be placed on the working face with other municipal solid wastes and covered immediately. In the absence of applicable State laws, large carcasses should be placed in a pit and provided with a cover of compacted soil or other suitable material to encourage runoff of precipitation.

(d) Water treatment plant sludges containing no free moisture and digested or heat treated waste water treatment plant sludges containing no free moisture should be placed on the working face along with municipal solid wastes and covered with soil or municipal solid wastes. The quantities accepted should be determined by operational problems encountered at the working face.

(e) Incinerator and air pollution control residues containing no free moisture should be incorporated into the working face and covered at such intervals as necessary to prevent them from becoming airborne.

§ 241.201 Solid wastes excluded.

§ 241.201–1 Requirement.

Using information supplied by the waste generator/owner, the responsible agency and the disposal site owner/operator shall jointly determine specific wastes to be excluded and shall identify them in the plans. The generator/owner of excluded wastes shall consult with the responsible agency in determining an alternative method of disposal for excluded wastes. The criteria used in considering whether a waste is unacceptable shall include the hydrogeology of the site, the chemical and biological characteristics of the waste, alternative methods available, environmental and health effects, and the safety of personnel. Disposal of pesticides and pesticide containers shall be consistent with the Federal Environmental Pesticides Control Act of 1972 (Pub. L. 92–516) and recommended procedures and regulations promulgated thereunder.

§ 241.201–2 Recommended procedures: Design.

Under certain circumstances it may be necessary to accept special wastes at land disposal sites. The following special wastes require specific approval of the responsible agency for acceptance at the site: Hazardous wastes, infectious institutional wastes, bulk liquids and semi-liquids, sludges containing free moisture, highly flammable or volatile substances, raw animal manure, septic tank pumpings, raw sewage sludge, and certain industrial process wastes. Where the use of the disposal site for such wastes is planned, a special assessment is required of the following items: The site characteristics, nature and quantities of the waste, and special design and operations precautions to be implemented to insure environmentally safe disposal.

§ 241.201–3 Recommended procedures: Operations.

Regular users of the land disposal site should be provided with a list of the materials to be excluded. The list should also be displayed prominently at the site entrance. If a regular user persists in making unacceptable deliveries, he should be barred from the site and reported to the responsible agency.

§ 241.202 Site selection.

§ 241.202–1 Requirement.

Site selection and utilization shall be consistent with public health and welfare, and air and water quality standards and adaptable to appropriate land-use plan.

§ 241.202–2 Recommended procedures: Design.

(a) The hydrogeology of the site should be evaluated in order to design site development in a manner to protect or minimize the impact on groundwater resources. Unacceptable hydrogeologic conditions may be altered to render the site acceptable, but all alterations should be detailed in the plans. Precipitation, evapotranspiration, and other climitological conditions should be considered in site selection and design.

(b) Characteristics of on-site soil should be evaluated with respect to their effects on site operations, such as vehicle maneuverability and use as cover material.

(c) Environmental factors, climatological conditions, and socioeconomic factors should be given full consideration as selection criteria.

(d) The site should be accessible to vehicles which the site is designed to serve by all-weather roads leading from the public road system; temporary roads should be provided as needed to deliver wastes to the working face.

(e) The site should not be located in an area where the attraction of birds would pose a hazard to low-flying aircraft.

§ 241.202–3 Recommended procedures: Operations.

Not Applicable.

§ 241.203 Design.

§ 241.203–1 Requirement.

Plans for the design, construction, and operation of new sites or modifications to existing sites shall be prepared or approved by a professional engineer. The plans shall be submitted to the responsible agency for review and, if warranted, approval.

§ 241.203–2 Recommended procedures: Design.

(a) The types and quantities of all solid wastes expected to be disposed of at the facility should be determined by survey and analysis to form a basis for design.

(b) Site development plans should be prepared or approved by a professional engineer and should include: The various design factors addressed elsewhere in the guidelines, as well as:

(1) Initial and final topographies at contour intervals of 5 feet or less.

(2) Land use and zoning within one-quarter mile of the site including location of all residents, buildings, wells, water courses, arroyos, rock outcroppings, roads, and soil or rock borings. All airports within the vicinity of the site should be identified to aid in assessing the potential hazard of birds to aircraft.

(3) Location of all utilities within 500 feet of the site.

(4) Employee convenience and equipment maintenance facilities.

(5) Narrative descriptions, with associated drawings, indicating site development and operation procedures.

(c) Plans should describe the projected use of the completed land disposal site. In addition to maintenance programs and provisions, where necessary, for monitoring and controlling decomposition gases and leachate, the plans should address the following ultimate use criteria:

(1) *Cultivated area.* The major concern if the completed site is to be cultivated is that the integrity of the final cover not be disturbed by agricultural cultivation activities. In this regard, a sufficient depth of cover material to allow cultivation and to support vegetation should be applied in addition to that recommended for final cover.

(2) *Structures.* It is not recommended practice to construct major structures on a completed land disposal site. If major

structures are to be built near a completed land disposal site, a professional engineer should approve their design and construction including provision for protection against potential hazards of solid waste decomposition gases.

§ 241.203–3 Recommended procedures: Operations.

Not applicable.

§ 241.204 Water quality.

§ 241.204–1 Requirement.

The location, design, construction, and operation of the land disposal site shall conform to the most stringent of applicable water quality standards established in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended. In the absence of such standards, the land disposal site shall be located, designed, constructed and operated in such a manner as to provide adequate protection to ground and surface waters used as drinking water supplies.

§ 241.204–2 Recommended procedures: Design.

(a) Plans should include:

(1) Current and projected use of water resources in the potential zone of influence of the land disposal site.

(2) Groundwater elevation and movement and proposed separation between the lowest point of the lowest cell and the predicted maximum water table elevation.

(3) Potential interrelationship of the land disposal site, local aquifers, and surface waters based on historical records or other sources of information.

(4) Background and initial quality of water resources in the potential zone of influence of the land disposal site.

(5) Proposed location of observation wells, sampling stations, and testing program planned, when appropriate.

(6) Description of soil and other geologic material to a depth adequate to allow evaluation of the water quality protection provided by the soil and other geologic material.

(7) Provision for surface water runoff control to minimize infiltration and erosion of cover material.

(8) Potential of leachate generation and proposed control systems, where necessary, for the protection of ground and surface water resources.

(b) If a land disposal site is located in a flood plain, it should be protected against at least the 50-year design flood by impervious dikes and other appropriate means to prevent the floodwaters from contacting municipal solid waste.

§ 241.204–3 Recommended procedures: Operations.

(a) Surface water courses and runoff should be diverted from the land disposals site (especially from the working face) by means such as trenches, conduits, and proper grading. The land disposal site should be constructed and graded so as to promote rapid surface water runoff without excessive erosion. Regrading should be done as required during construction and after completion to avoid ponding of precipitation and to maintain cover material integrity.

(b) Siltation or retention basins or other approved methods of retarding runoff should be used where necessary to avoid stream siltation or flooding problems due to excessive runoff.

(c) Leachate collection and treatment systems should be used where necessary to protect ground and surface water resources.

(d) Municipal solid wastes and leachate therefrom should not be allowed to contact ground or surface water so as to impair the water's use.

§ 241.205 Air quality.

§ 241.205–1 Requirement.

The design, construction, and operation of the land disposal site shall conform to applicable ambient air quality standards and source control regulations established under the authority of the Clean Air Act, as amended, or State or local standards effective under that Act, if the latter are more stringent.

§ 241.205–2 Recommended procedures: Design.

Plans should include an effective dust control program.

§ 241.205–3 Recommended procedures: Operations.

(a) Open burning of municipal solid waste should be prohibited.

(b) Dust control measures should be initiated as necessary to protect the health and safety of facility personnel, nearby residents, and persons using the facility.

§ 241.206 Gas control.

§ 241.206–1 Requirement.

Decomposition gases generated within the land disposal site shall be controlled on site, as necessary, to avoid posing a hazard to occupants of adjacent property.

§ 241.206–2 Recommended procedures: Design.

Plans should assess the need for gas control and indicate the location and design of any vents, barriers, or other control measures to be provided.

§ 241.206–3 Recommended procedures: Operations.

(a) Decomposition gases should not be allowed to migrate laterally from the land disposal site to endanger occupants of adjacent properties. They should be vented to the atmosphere directly through the cover material, cutoff trenches, or ventilation systems in such a way that they do not accumulate in explosive or toxic concentrations, especially within structures. (Information on the limits of flammability of gases is available in such references as the "Handbook of Chemistry and Physics," 54th ed. CRC Press, Inc., Cleveland, 1973.)

(b) Decomposition gases should not be allowed to concentrate in a manner that will pose an explosion or toxicity hazard.

§ 241.207 Vectors.

§ 241.207–1 Requirement.

Conditions shall be maintained that are unfavorable for the harboring, feeding, and breeding of vectors.

§ 241.207–2 Recommended procedures: Design.

Plans should include contingency programs for vector control, and the operator should be prepared at all times to implement those procedures.

§ 241.207–3 Recommended procedures: Operations.

Vector control contingency programs should be implemented when necessary to prevent or rectify vector problems.

§ 241.208 Aesthetics.

§ 241.208–1 Requirement.

The land disposal site shall be designed and operated at all times in an aesthetically acceptable manner.

§ 241.208–2 Recommended procedures: Design.

Plans should include an effective litter control program.

§ 241.208–3 Recommended procedures: Operations.

(a) Portable litter fences or other devices should be used in the immediate vicinity of the working face and at other appropriate locations to control blowing litter. At the end of each operating day, or more often as required, litter should be removed from the fences and incorporated into the cell being used. Alternatively, the litter may be containerized for disposal on the next operating day.

(b) Wastes that are easily moved by wind should be covered, as necessary, to prevent their becoming airborne and scattered.

(c) On-site vegetation should be cleared only as necessary. Natural windbreaks, such as green belts, should be maintained where they will improve the appearance and operation of the land disposal site. Buffer strips should be planted and/or berms constructed as necessary to screen the working force from nearby residences or major roadways.

(d) Salvage operations should be conducted in such a manner as to not detract from the appearance of the land disposal site. Salvaged material should be removed from the land disposal site frequently enough to maintain aesthetic acceptability.

§ 241.209 Cover material.

§ 241.209–1 Requirement.

Cover material shall be applied as necessary to minimize fire hazards, infiltration of precipitation, odors, and blowing litter; control gas venting and vectors; discourage scavenging; and provide a pleasing appearance.

§ 241.209–2 Recommended procedures: Design.

Plans should specify:

(a) Cover material sources and soil classifications (Unified Soil Classification System or U.S. Department of Agriculture Classification System).

(b) Surface grades and side slopes needed to promote maximum runoff, without excessive erosion, to minimize infiltration.

(c) Procedures to promote vegetative growth as promptly as possible to combat erosion and improve appearance of idle and completed areas.

(d) Procedures to maintain cover material integrity, e.g., regarding and recovering.

§ 241.209–3 Recommended procedures: Operations.

(a) Daily cover should be applied regardless of weather; sources of cover material should, therefore, be accessible on all operating days. The thickness of the compacted daily cover should not be less than 6 inches.

(b) Intermediate cover should be applied on areas where additional cells are not to be constructed for extended periods of time; normally, one week to one year. The thickness of the compacted intermediate cover should not be less than 1 foot.

(c) Final cover should be applied on each area as it is completed or if the area is to remain idle for over one year. The thickness of the compacted final cover should not be less than 2 feet.

§ 241.210 Compaction.

§ 241.210–1 Requirement.

In order to conserve land disposal site capacity, thereby preserving land resources, and to minimize moisture infiltration and settlement, municipal solid waste and cover material shall be compacted to the smallest practicable volume.

§ 241.210–2 Recommended procedures: Design.

(a) Arrangements should be made and indicated in the plans whereby substitute equipment will be available to provide uninterrupted service during routine equipment maintenance periods or equipment breakdowns.

(b) An equipment maintenance facility should be provided onsite, or appropriate contract arrangements should be made to receive such service.

(c) Equipment manuals, catalogs, and spare parts lists should be compiled and readily available onsite.

§ 241.210–3 Recommended procedures: Operations.

(a) Municipal solid waste handling equipment should on any operating day be capable of performing the following functions:

(1) Spread the solid waste accepted in layers no more than 2 feet thick while confining it to the smallest practicable area;

(2) Compact the spread solid wastes to the smallest practicable volume (several such compacted layers will form a cell); and

(3) Place, spread, and compact the cover material over the cell at least by the end of each day's operation.

(b) A preventive maintenance program should be employed to maintain equipment in operating order.

(c) An operating manual describing the various tasks that must be performed during a typical shift should be available to employees for reference.

§ 241.211 Safety.

§ 241.211–1 Requirement.

The land disposal site shall be designed, constructed, and operated in such a manner as to protect the health and safety of personnel associated with the operation. Pertinent provisions of the Occupational Safety and Health Act of 1970 (Pub. L. 91–596) and regulation promulgated thereunder shall apply.

§ 241.211–2 Recommended procedures: Design.

A manual describing safety precautions and procedures to be employed should be developed.

§ 241.211–3 Recommended procedures: Operations.

(a) A safety manual should be available for use by employees, and they should be instructed in application of its procedures.

(b) Personal safety devices such as hard hats, gloves, safety glasses, and footwear should be provided to facility employees.

(c) Safety devices, including but not limited to such items as rollover protective structures, seatbelts, audible reverse warning devices, and fire exinguishers should be provided on all equipment used to spread and compact solid wastes or cover material at the facility.

(d) Provisions should be made to extinguish any fires in wastes being delivered to the site or which occur at the working face or within equipment or personnel facilities.

(e) Communications equipment should be available on site for emergency situations.

(f) Scavenging should be prohibited at all times to avoid injury and to prevent interference with site operations.

(g) Access to the site should be controlled and should be by established roadways only. The site should be accessible only when operating personnel are on duty. Large containers may be placed at the site entrance so that users can conveniently deposit waste after hours. The containers and the areas around them should be maintained in a sanitary and litter-free condition.

(h) Traffic signs or markers should be provided to promote an orderly traffic pattern to and from the discharge area, maintain efficient operating conditions, and, if necessary, restrict access to hazardous areas. Drivers of manually discharging vehicles should not hinder operation of mechanically discharging vehicles. Vehicles should not be left unattended at the working face or along traffic routes. If a regular user persistently poses a safety hazard, he should be barred from the site and reported to the responsible agency.

§ 241.212 Records.

§ 241.212–1 Requirement.

The owner/operator of the land disposal site shall maintain records and monitoring data to be provided, as required, to the responsible agency.

§ 241.212–2 Recommended procedures: Design.

Where appropriate, plans should prescribe methods to be used in maintaining records and monitoring the environmental impact of the land disposal site. Information on recording and monitoring requirements should be obtained from the responsible agency.

§ 241.212–3 Recommended procedures: Operations.

(a) Records should be maintained covering at least the following:

(1) Major operational problems, complaints, or difficulties.

(2) Qualitative and quantitative evaluation of the environmental impact of the land disposal site, with regard to the effectiveness of gas and leachate control, including results of: (i) Leachate sampling and analyses; (ii) gas sampling and analyses; (iii) ground and surface water quality sampling and analyses upstream and downstream of the site.

(3) Vector control efforts.

(4) Dust and litter control efforts.

(5) Quantitative measurements of the solid wastes handled. This should be accomplished through routine or periodic utilization of scales and topographic surveys of the site.

(6) Description of solid waste materials received, identified by source of materials.

(b) Upon completion of the site, a detailed description, including a plat, should be recorded with the area's land recording authority. The description should include general types and locations of wastes, depth of fill, and other information of interest to potential landowners.

APPENDIX—RECOMMENDED BIBLIOGRAPHY

1. Banta, J., ET AL. Sanitary landfill; manual of engineering practices, No. 39. American Society of Civil Engineers, 1959.

2. Black, C. A., D. D. Evans, J. L. White, L. E. Ensminger, F. E. Clark, and R. C. Dinauer, EDS. Methods of soil analysis. Pt. 1. Physical and mineralogical properties, including statistics of measurement and sampling. Madison, Wis., American Society of Agronomy, Inc., 1965.

3. Black, R. J. Sanitary landfill . . . an answer to a community problem; a route to a community asset. Public Health Service Publication No. 1012. Washington, U.S. Government Printing Office, 1970. [8 p.].

4. Bjornson, B. F., H. D. Pratt, and K. S. Littig. Control of domestic rats & mice. Public Health Service Publication No. 563. Washington, U.S. Government Printing Office, 1956. Revised 1960, 1968. Reprinted [Bureau of Solid Waste Management] 1970. 41 p.

5. Brashares, W. C., and R. M. Golden. Occupational Safety and Health Act. Special

bulletin. Washington, National Solid Wastes Management Association, 1972.

6. Brunner, D. R., S. J. Hubbard, D. J. Keller, and J. L. Newton. Closing open dumps. Washington, U.S. Government Printing Office, 1971. 19 p. Reprinted 1972.

7. Brunner, D. R., and D. J. Keller, Sanitary landfill design and operation. Washington, U.S. Government Printing Office, 1972. 59 p.

8. Sorg, T. J., and H. L. Hickman, Jr. Sanitary landfill facts. 2d ed. Public Health Service Publication No. 1792. Washington, U.S. Government Printing Office, 1970. 30 p. Reprinted 1971.

9. Occupational Safety and Health Act of 1970; Public Law 91-596, 91st Cong., S. 2193, Dec. 29, 1970. Washington, U.S. Government Printing Office, 1970.

10. The Solid Waste Disposal Act as amended; Title II of Public Law 89-272, 89th Cong., S. 306, Oct. 20, 1965; Public Law 91-512, 91st Cong., H.R. 11833, Oct. 26, 1970. Washington, U.S. Government Printing Office, 1971. 14 p. Reprinted 1972.

11. Zausner, E. R. An accounting system for sanitary landfill operations. Public Health Service Publication No. 2007. Washington, U.S. Government Printing Office, 1969. 18 p.

12. Federal Environment Pesticides Control Act of 1972; Public Law 92-516, 92d Cong., H.R. 10729, Oct. 21, 1972. Washington, U.S. Government Printing Office, 1972.

13. Handbook of chemistry and physics. 54th ed., Cleveland, CRC Press, Inc., 1973.

[FR Doc.74-18646 Filed 8-13-74;8:45 am]

Just Released

CODE OF FEDERAL REGULATIONS

(Revised as of April 1, 1974)

Title 18—Conservation of Power and Water Resources (Part 150–End)	$3.70
Title 19—Customs Duties	4.50
Title 20—Employees' Benefits (Part 400–End)	6.30
Title 26—Internal Revenue (Parts 2–29)	2.70

[A Cumulative checklist of CFR issuances for 1974 appears in the first issue of the Federal Register each month under Title 1]

**Order from Superintendent of Documents,
United States Government Printing Office,
Washington, D.C. 20402**